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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/617,975	07/12/2003	David R. Payne	2380-561	4897

28839	7590	11/19/2007
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EXAMINER	
ADDIE, RAYMOND W	

ART UNIT	PAPER NUMBER
3671	

MAIL DATE	DELIVERY MODE
11/19/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/617,975

**Applicant(s)**

PAYNE ET AL.

**Examiner**

Raymond W. Addie

**Art Unit**

3671

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 23 August 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 4-12 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-12 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 7/12/07 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_.

- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

  
**RAYMOND ADDIE**  
**PRIMARY EXAMINER**

### DETAILED ACTION

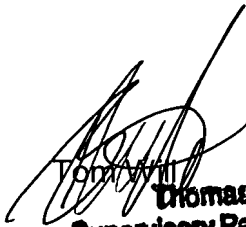
1. In view of the Order from the Board of Patent Appeals and Interferences filed on 8/23/07, PROSECUTION IS HEREBY REOPENED. A New Grounds of Rejection is set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) initiate a new appeal by filing a notice of appeal under 37 CFR 41.31 followed by an appeal brief under 37 CFR 41.37. The previously paid notice of appeal fee and appeal brief fee can be applied to the new appeal. If, however, the appeal fees set forth in 37 CFR 41.20 have been increased since they were previously paid, then appellant must pay the difference between the increased fees and the amount previously paid.

A Supervisory Patent Examiner (SPE) has approved of reopening prosecution by signing below:

  
**Thomas B. Will**  
**Supervisory Patent Examiner**  
**Group 3600**

***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 4-6, 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hesse et al. # 5,833,015 in view of Alft # 6,308,787 B1.

Hesse et al., discloses a method for drilling and backreaming a horizontal bore hole, the method comprising:

Automatically rotating and pulling a drill string (3), having a backreamer (5) through the horizontal borehole.

Automatically reducing a rate of pullback if a rotation pressure on the drill string is greater than a predetermined limit.

Automatically reducing the rate of pullback if a rotation speed of the drill string is less than a predetermined limit.

Increasing the rate of pullback if the rotation pressure is less than the predetermined limit, increasing the rotation speed of the drill string is greater than a predetermined limit, and the product tension at the backreamer (24) is less than a predetermined limit.

Attaching a utility line(8) to the backreamer, after the boring tool (26) has exited the earth at location (24). See Hesse et al. Col. 3, ln. 50-col. 5, ln. 23.

What Hesse et al. does not disclose is automatically reducing the length of the drill string. However, Alft teaches a method of operating a horizontal boring machine having an automated drill string (22), which can be lengthened or shortened, by adding or removing a pipe section from the drill string, either automatically or manually. Alft explicitly recites "A pipe loading controller (141) may be employed to control an automatic rod loader apparatus during rod threading and unthreading operations". See Col. 30, Ins. 30-33. Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to provide the method of forming a bore hole, of Hesse et al., with the method of automatically lengthening or shortening the drill string, as taught by Alft et al., in order to maximize boring efficiency. See Alft col. 30, lines 19-65.

In regards to claim 6, Hesse et al. discloses it is desirable to pull a utility line through a borehole, by attaching the utility line (8) to a drill head (5), and to transmit operational data from the bore head to the drilling machine to maximize boring efficiency. What Hesse et al. does not disclose is recording the actual location of the utility line as the utility line is automatically pulled through the borehole via a transmission line disposed within the drill string.

However, Alft discloses it is known to track the position of a drill head (24) in real time, using a sonde-type transmitter and remote control unit that uses a traditional methodology for locating the drill head. Alft explicitly recites "The portable control unit

may also embody the 'drill head locating receiver' and/or radio that transmits data to the boring machine receiver/display". Alft further recites "A control system...provides for the acquisition and processing of boring tool location, orientation...in real time...the use of repeaters may significantly reduce delays associated with acquiring and processing information concerning the position and activity of the boring tool (24)".

Therefore, it would have been obvious to one of ordinary skill in the art, at the time the invention was made to provide the method of backreaming a borehole of Hesse et al. with the method of tracking the drill head, as taught by Alft, in order to continuously determine and record the location of the utility line, connected to the drill head. See col. 12, Ins.16-20, col. 16, Ins. 16-41.

3. Claims 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hesse et al. # 5,833,015 in view of Alft # 6,308,787 B1, as put forth with respect to claim 4 above, and further in view of Bischel et al. # 5,746,278.

With respect to claims 7, 8 Alft teaches:

"Depending on a given application, it may also be desirable or required to acquire 44 environmental data concerning the boring tool 24 in real-time, such as boring tool temperature and stress/pressure, for example". See Col. 18, Ins. 27-50

With specific regard to claims 9-11, although neither Hesse et al., nor Alft explicitly recite reducing the rate of pullback of the drill string by a certain percentage; both Hesse et al., and Alft do disclose that the rate of pull-back can be reduced or terminated based upon whether the rotation speed, rotation pressure(torque) of the drill string, or

the product tension (lubricating mud pressure) is above or below a pre-determined level. Further, Bischel et al., which is incorporated by reference in its entirety by Alft; explicitly recites "When the controller detects a rise in rotation pump pressure above an unacceptable level, the controller disengages the boring tool by reducing the rate of boring tool displacement along the underground path, while maintaining rotation of the boring tool at a pre-selected rate. Such disengagement reduces the load on the rotation pump and allows the pressures to recover to an acceptable level. The controller re-engages the boring tool after detecting that the rotation pump pressure has fallen below a set level". See Bischel et al., Abstract; Col. 2, Ins. 13-39; Col. 4, In. 21-col. 6, In. 56. Therefore, it would have been obvious to one of ordinary skill in the art, to provide the method of backreaming a horizontal borehole, of Hesse et al., in view of Alft, with the steps of providing a controller, that can automatically increase and decrease the displacement rate of the boring tool, based on pre-set operating parameters, as taught by Bischel et al., in order to "maintain a substantially constant rotation rate which provides for optimized drilling efficiency"; as clearly stated by Bischel et al. See Col. 6, Ins. 53-56.

#### ***Response to Arguments***


4. Applicant's arguments filed 9/22/06 have been fully considered but they are not persuasive. It is believed Applicant's arguments have been fully addressed in the rejections above, without further discussion.

***Conclusion***

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond W. Addie whose telephone number is 571 272-6986. The examiner can normally be reached on 7am-2:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas B. Will can be reached on 571 272-6998. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



**Raymond Addie  
Primary Examiner  
Group 3600**

10/11/07